भारतीय मानक

IS 12663 (Part 1) : 2023

Indian Standard

बल्क संचलन उपस्कर — रिक्लेमर — चयन के लिए आंकड़ा पत्र

भाग 1 स्क्रेपर रिक्लेमर (रेल माउंटेड)

(पहला पुनरीक्षण)

Bulk Handling Equipment — Reclaimer — Data Sheet for Selection

Part 1 Scraper Reclaimer (Rail Mounted)

(First Revision)

ICS 53.040.01

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Earth Moving Equipment and Material Handling Sectional Committee, MED 07

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Earth Moving Equipment and Material Handling Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was originally issued in 1989. The present revision has been taken up with a view to incorporating the modifications found necessary as a result of experience gained in the use of this standard. Also, in this revision, the standard has been brought into latest style and format of Indian Standards, and references to Indian Standards, wherever applicable have been updated.

This standard data sheet is expected to provide a uniform practice for giving details of rail mounted scraper reclaimer by the manufacturers and the purchasers and may help in the selection of such reclaimers.

The composition of the committee responsible for the formulation of this standard is listed in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

BULK HANDLING EQUIPMENT — RECLAIMER — DATA SHEET FOR SELECTION

PART 1 SCRAPER RECLAIMER (RAIL MOUNTED)

(First Revision)

1 SCOPE

This standard lays down the data required for selection of rail mounted scraper reclaimer.

2 REFERENCES

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

IS No.	*Title*
IS 2266 : 2019	Steel wire ropes for general engineering purpose — Specification (*fifth revision*)

3 DATA SHEET

3.1 Application and Site Data

a) Applicable to: Proposal ……………………………………………………………………………………………

Date ………

b) Service ………………………………………………………………………………… Continuous/Intermittent;

Days per year ………………………………………………………………………………………………… days

c) Duty: Operating hours per shift …………………………………………………………………………… h

Shifts per day ……………………………………………………………………………………………………

d) Method of loading ………………………………………………………………………………………………

e) Site altitude ………………………………………………………………………………………………………

f) Environment ……………………………………………………………………… Dusty/Foggy/Snowy/Slushy/Clean

g) Relative humidity, *Max* at ………………………………………… K ……………………………………… Percent

h) Temperature: *Max* ………………………………………………………… K *Min* ………………………………………… K

j) Rain Fall: Average ……………………………………………………… *Max* ……………………………………………

3.2 Material Handled Data

a) Material handled …………………………………………………………………………………………………

b) Capacity ……………………………… Normal ……………………………… Maximum ………………………………………

c) Size ………

d) Bulk density ………………………………………………………………………………………………………

e) Corrosiveness ……………………………………………………………………………………………………

f) Hardness ………

g) Abrasiveness …….

h) Moisture (percent) ……………………………………………………………………………………………………

j) Maximum temperature in silo ……………………………………………………………………………….. K

k) Relative humidity in silo ………………………………………………………………………………………...

m) Angle of repose ………………………………………………………………………………………………….

3.3 Operating Data

a) Speed …….

b) Scraper chain (m/minute) ………………………………………………………………………………………..

c) Elevator (m/minute) ………………………………………………………………………………………………..

d) Discharge conveyor (m/minute) ………………………………………………………………………………...

e) Luffing:

   1) Normal speed (degree/minute) ……………………………………………………………………………

   2) Micro speed (degree/minute) ……………………………………………………………………………..

f) Slewing (degree/minute) ………………………………………………………………………………………...

g) Travelling (m/minute) ..………………………………………………………………………………………………

h) Range of slewing (degree) ..…………………………… ………………………………………………………….

j) Maximum luffing angle (degree) ..……………………… …………………………………………………………...

3.4 Scraper Boom

a) Capacity (tonne/hour) ………………...……………..…. Normal ……………………………………..…… Designed

b) Length of boom (m) ………………………………………………………………………………………………..

c) Size of scraping blade ……………………………………………………………………………………………...

d) Number of scraping blade ……………………………………………………………………………………………

e) Blade fixing arrangement ……………………………………………………………………………………………..

f) Size of scraping knives ……………………………………………………………………………………………

g) Number of scraping knives ……………………………………………………………………………………………..

h) Knife fixing arrangement ……………………………………………………………………………………………….

j) Chain (Conveying):

1) Size ……………………………………………......………...……………………………………..………....
2) Type …………………………………………......………………………………………………....……
3) Make ……………………………………………......………………………………...……………...………
4) Pitch (mm) ……………………………………………………………………………………………
5) Roller diameter (mm) …………………………….…………………….....…………………………
6) Ultimate breaking strength (MPa) ……………………..…………………….....……………………………

k) Chain Sprockets:

1) Pitch circle diameter (mm) ……………………………………………....…………………………………….
2) Number of teeth ……………………………………....…………………………………………………….
3) Number off ……………………………………..…………………………………………………………….
4) Construction ……………………………………....…………………………………. Cast/Forged/Welded

m) Guide Roller:

1) Required/Not required ……………………….....……………………………………………………………
2) Number ……………………………………....………………………………………………………...
3) Size (mm) ………………………………....……………………………………………………………

n) Sprocket Bearing:

1) Type …………………………....…………………………………………………………………………
2) Make …………………………....……………………………………………………………………...
3) Size …………………………...………………………………………………………………………….
4) Numbers ………………………….....……………………………………………………………………….
5) Chain tensioning device: Type …………....……………… Movement (mm) …………………………………..

3.5 Drive Unit Particulars

a) Reversible/Non-reversible ………………………......……………………………………………………..

b) Type: Single speed ……………….. Two speed…………………Variable speed ……………………………...……..

c) Electric Motor:

1) Type …………………………………….....……………………………………………………………...
2) Make …………………………………....………………………………………………………………..
3) kW ……………………………………...……………………………………………………………..
4) Rev/minute ……………………………....………………………………………………………………….
5) Class of insulation ………………………...……….................……………………………………….
6) Rating with respect to duty cycle ………………...……………………………………………………

d) Coupling:

1) Type ………………………………………………………………………………………………………
2) Make …………………………………………………………..………………………………...………
3) Size ……………………………………………………………………………………………….………
4) Percentage slip …………………………………………..……………………………….……………
5) Overall drive efficiency ……………………………….…………………………….……………

e) Primary Reduction:

   1) Type……………………………………………………………….……………….....……………………
   2) Make ……………………………………………………….…………………………………………..…
   3) Size …………………………………………………………………………………………………….…
   4) Ratio ……………………………………………………………...…………………………………..…
   5) Service factor ……………………………………………………………………………………..……

f) Brakes:

   1) Numbers ……………………………….………………………………………………………………
   2) Type ……………………………….…….…………………………………….……………………
   3) Make …………………………….…………………………….………………………………………
   4) Size ………………………………….……………………………………………………………………

g) Secondary Reduction:

   1) Type ………………………………………………………………………...……………….………
   2) Make ……………………………………………………………………….…………………..………
   3) Size …………………………………………………………………………………………………..…
   4) Ratio …………………………………………………………………...…………………..………
   5) Service factor ……………………………………………………………………..………………

h) Safety device ……………………………………………………………………………………………….

j) Other particulars …………………………………………………………………………..………..…...…….

3.6 Bucket Elevator

a) Type ……………………………………………………………………………………………………..

b) Inclination with vertical (degrees) ……………………………………………………………………………

c) Discharge chute valley angle (degrees) ………………………………………………………………………

d) Bucket Data:

   1) Number off ……………………………………………………………………………………………….
   2) Size (Length × Width × Projection) (mm) ………………..…………..…………………………………….
   3) Plate thickness (mm) ………………………………………………………………………………..
   4) Capacity (water filled) (m^3) ……………………………………………………………………………
   5) Pitch (mm) ………………………………………………………………………………………………..
   6) Guide roller number off ………………………………………………………………………………..
   7) Diameter (mm) ………………………………………………………..………………………………

e) Tensioning Device Required: Yes/No

   1) Location ………………………………..……………………………………………………………
   2) Type ………………………………………………………………………...…...………………………
   3) Movement ……………………………………………………………….…...……………………………

f) Bearings:

   1) Type …………………………………………………………………………..………………….………
   2) Make ……………………………………………………………………………………………....…
   3) Size ………………………………………………………………….…………………...……………

g) Capacity (tonne/hour):

   1) Normal ……………………………………………………………………..…………..……………………
   2) Designed …………………………………………………………………………………………….…………

h) Centre to centre distance (m) …………………………………………………………………………..……..

j) Elevator Chain …………………...………………………… Single/ Double ……………………………….……..

   1) Type ……………………...………………………………………………………..………………..……
   2) Make ……………………….……………………………………..……………………………….……
   3) Pitch (mm) …………………………..………………………….…………….…….………………..……
   4) Roller/Link diameter (mm) ………………………..……………………….……………………..……
   5) Ultimate breaking strength (MPa) ……………………….………..……………….……………………..……

k) Bucket fixing by bolts/rivets

m) Sprockets for Elevator — Number of head/boot

   1) Pitch circle diameter (mm) ………………………………………………………………….…………..……
   2) Number of teeth …………………………………………………………………………….……………..……
   3) Construction ………………………………………………………………………………………………..……

n) Hold Back Required: Yes/No

   1) Type ……………………………………………………………………………………………………..……
   2) Location ………………………………….………………………………………………………..……

p) Inspection Door Required: Yes/No

   1) Size ……………………………………………………..……...……………………………………..……
   2) Location ………………………………………………...…………...…………………………………..……

3.7 Drive Unit Particulars

a) Location: ……………..…………………………..…………………. ……………..……..………. Head end/Tail end

b) Type: ……………………………….…………………..……..……..…… Single speed/Two speed/Variable speed

c) Electric Motor:

   1) Type …………………………………………………….…………………………………………………
   2) Make ………………………………………………..……………………...……………………………
   3) Size ………………………………………………..………………………..………...……………………
   4) kW ……………………………………………………..………………………………...………………
   5) Rev/min ………………………………………………..…………………………………...……………
   6) Class of insulation…………………………………..……………………………………………………...
   7) Rating with respect to duty cycle…………………………..……………………………………………………

d) Primary Reduction:

   1) Type ……………………………………………………..………………………………………………
   2) Make ……………………...…………………………..……………………………………………………
   3) Size ……
   4) Ratio ……………………………………………..………………………………………………………
   5) Service factor ………………………………….…………………………………………………………

e) Secondary Reduction:

    1) Type ……………………………………………………
    2) Make ……………………………………………………
    3) Size ……………………………………………………
    4) Ratio ……………………………………………………
    5) Service factor ……………………………………………………

f) Coupling:

    1) Type ……………………………………………………
    2) Make ……………………………………………………
    3) Size ……………………………………………………
    4) Percentage slip ……………………………………………………

g) Overall drive efficiency ……………………………………………………

h) Safety device ……………………………………………………

j) Other particulars ……………………………………………………

3.8 Special Features (if any)

3.9 Discharge Conveyor

a) Type …………………………………………………… Flat/Troughed

b) Troughing angle ……………………………………………………

c) Inclination with horizontal ……………………………………………………

d) Capacity (tonne/hour) ……………………………………………………

    1) Normal ……………………………………………………

    2) Designed ……………………………………………………

e) Belt Specification ……………………………………………………

    1) Belt width (mm) ……………………………………………………

    2) Cover grade ……………………………………………………

    3) Number of plies and duck ……………………………………………………

    4) Cover thickness (mm) ………………………. Top ……………………….. Bottom ……………………….

    5) Make ……………………………………………………

f) Pulley Diameter (mm) ……………………………………………………

    1) Head ……………………………………………………

    2) Tail/snub ……………………………………………………

    3) Idler diameter (troughing/return) (mm) ……………………………………………………

g) Bearings:

1) Type ……………………………………………………………………………

2) Size ……………………………………………………………………………

3) Make ……………………………………………………………………………

h) Centre to centre pulley (m) ……………………………………………………………

j) Pulleys lagged/unlagged …………………………………………………………………

k) Idlers lagged/unlagged, lifegreased/relubricated ………………………………………

m) Trailing Idler: (sets of)

1) Carrying side ……………………………………………………………………

2) Return side ………………………………………………………………………

n) Walk Way on Gantry:

1) One side/both side ………………………………………………………………

2) Width ……………………………………………………………………………

p) Hold Back Required …………………………………………………………… Yes/No

1) Type ……………………………………………………………………………

2) Make ……………………………………………………………………………

3) Size ……………………………………………………………………………

q) Tensioning Device Required : ……………………………………………………Yes/No

1) Type ……………………………………………………………………………

2) Movement ………………………………………………………………………

r) Belt Cleaners:

1) Required/Not required ……………………………………………………………

2) Internal/external …………………………………………………………………

3) Head end/tail end …………………………………………………………………

3.10 Drive Unit Particulars

a) Location Head end/Tail end

b) Electric Motor/Motorized Drum:

   1) Type ……………………………………………
   2) Make ……………………………………………
   3) Size ……………………………………………
   4) kW ……………………………………………
   5) Rev/min ……………………………………………
   6) Class of insulation ……………………………………………
   7) Rating with respect to duty cycle ……………………………………………

c) Primary Reduction:

   1) Type ……………………………………………
   2) Make ……………………………………………
   3) Size ……………………………………………
   4) Ratio ……………………………………………
   5) Service factor ……………………………………………

d) Secondary Reduction:

   1) Type ……………………………………………
   2) Make ……………………………………………
   3) Size ……………………………………………
   4) Ratio ……………………………………………
   5) Service factor ……………………………………………

e) Coupling:

   1) Type ……………………………………………
   2) Make ……………………………………………
   3) Size ……………………………………………

f) Overall drive efficiency ……………………………………………

g) Particulars of Geared Motor (if provided)

1) Size ……………………………………………………….…………………………..………………...……...

2) Make ……………………………………………………………………………………...…………...……..

3) Output (kW) …………………………………………….……………………………...…………...……..

4) Speed (rev/min) ………………………………………………………………………..…………...……..

5) Class of insulation ……………………………………………………………………..…………...……..

6) Rating with respect to duty cycle ………………………………………………….……..…………...……..

h) Other particulars ………………………………………………………………………...…………...……….

3.11 Luffing Mechanism

a) Distance between beam pivot centers to luffing rope anchorage point (m) ……………………….…………...……….

b) Winch drum ………………………………………………………………………………………..…………...……….

c) Diameter × length

Pulleys (1)	*Numbers* (2)	*Diameter* mm (3)
i) Beam		
ii) Top		
iii) Guide		

d) Brakes:

1) Numbers ……………………………………………………………..……………………………………...……

2) Mechanical/Electromagnetic ………………………………………..…………………………………...……

3) Make ……………………………………………………………………………………...…………………...……

4) Size …………………………………………………………………..…………..………..……………...……

5) Other particulars ………………………………………………………..……………..…….……………...……

e) Wire Rope (*see* IS 2266)

1) Make …………………………………………………………………………………....……..……………...……

2) Construction ………………………………………………………………………….……..……………...……

3) Ultimate breaking ……………………………………………………………………….…….……………...……

4) Strength (MPa) ……………………………………………………………………….…….……………...……

5) Factor of safety ……………………………………………………………………...…….……………...……

6) Number of falls ……………………………………………………………………...…….……………....……

f) Bearing:

1) Type ……………………………………………………………………………………....…….……………....……

2) Make ……………………………………………………………………………………....…….……………...……

3) Size ……………………………………………………………..………………....…….……………...……

4) Location …………………………………………………………………………………...…….……………....……

5) Other Safety Devices – Required/Not required ………………………………………...…….……………....……

6) Particulars of devices ……………………………………………………………………...…….……………....……

3.12 Drive Unit Particulars

a) Electric Motor:

  1) Reversible ………………………………………………………………… Yes/No
  2) Type …………………………………………………………………………
  3) Make …………………………………………………………………………
  4) Size …………………………………………………………………………
  5) kW …………………………………………………………………………
  6) Speed (rev/min) ……………………………………………………………
  7) Class of insulation …………………………………………………………
  8) Rating with respect to duty cycle …………………………………………

b) Primary Reduction:

  1) Type …………………………………………………………………………
  2) Make …………………………………………………………………………
  3) Size …………………………………………………………………………
  4) Ratio …………………………………………………………………………
  5) Service factor ………………………………………………………………

c) Secondary Reduction:

  1) Type …………………………………………………………………………
  2) Make …………………………………………………………………………
  3) Size …………………………………………………………………………
  4) Ratio …………………………………………………………………………
  5) Service factor ………………………………………………………………

d) Reduction Unit (Micro Speed):

  1) Type …………………………………………………………………………
  2) Make …………………………………………………………………………
  3) Size …………………………………………………………………………
  4) Ratio …………………………………………………………………………
  5) Service factor ………………………………………………………………

e) Coupling:

1) Type ……………………………………………………………………………………….…….…………....……

2) Make ……………………………………………………………………………...…….…………....……

3) Size ………………………………………………………………………………...…….…………....……

4) Overall drive efficiency ……………………………………………………….....…….…………....……

f) Limit Switches:

1) Type ……………………………………………………..……………………….…….…………....……

2) Numbers.…………………………………………………………………………......……..…………...……

3) Make ………………………………………………………………………………...…………....……

4) Location ……………………………………………..…………………………...……..…………....……

g) Other particulars ……………………………………………..……………………………….………....……..

3.13 Slewing Mechanism

a) Slewing mechanism shall be as per the Table 1.

Table 1 Slewing Mechanism
(*Clause* 3.13)

Sl No. (1)	Main Slew Gear Train (2)	Gear (3)	Pinion (4)
i)	Type and profile		
ii)	Number of teeth		
iii)	Module (mm)		
iv)	Width (mm)		
v)	Pressure angle		
vi)	Surface finish		
vii)	Heat treatment detail		

b) Rolling Wheel:

1) Number ……………………………………………………………………….…………..…………....……

2) Diameter (mm) ………………………………………………………….……….….…………...……

3) Width (mm) ………………………………………………………………..…………..…………....……

4) Bearing: Type ………………….. Size …………………....……..…..… Make ……………………….……….

c) King Post:

  1) Number ………………………………………………………………………

  2) Thickness (mm) …………………………………………………………

  3) Height (mm) ……………………………………………………………

  4) Bearing: Type ………………….. Size ………….…… Make ………………………

d) Limit Switches:

  1) Numbers ………………………………………………………………………

  2) Type ……………………………………………………………………………

  3) Make ……………………………………………………………………………

  4) Locations ………………………………………………………………………

3.14 Drive Unit Particulars

a) Electric Motor:

  1) Reversible: ………………………………………………………….. Yes/No

  2) Type ……………………………………………………………………………

  3) Size ……………………………………………………………………………

  4) kW ………………………………………………………………………………

  5) Speed (rev/min) …………………………………………………………

  6) Phase …………………………………………………………………………

b) Primary Reduction:

  1) Type ……..……………………………………………………….. Yes/No

  2) Make ……………………………………………………………………………

  3) Size ……………………………………………………………………………

  4) Ratio …………………………………………………………………………

  5) Service factor …………………………………………………………

c) Secondary Reduction:

  1) Type ……………………………………………………………………………

  2) Make ……………………………………………………………………………

  3) Size ……………………………………………………………………………

  4) Ratio …………………………………………………………………………

  5) Service factor …………………………………………………………

d) Coupling:

  1) Type ……………………………………………………………………..…………………………....…………

  2) Make ……………………………………………………………………..…………………………....…………

  3) Size ………………………………………………………………….....…………………………....………

e) Bearings:

  1) Type ……………………………………………………………………..…………………………....………

  2) Make ……………………………………………………………………..…………………………....………

  3) Size ………………………………………………………………….....…………………………....………

f) Brake:

  1) Type ……………………………………………………………………..…………………………....…………

  2) Size ………………………………………………………………….....…………………………....………

  3) Make ……………………………………………………………………..…………………………....…………

g) Overall drive efficiency ………………………………………………………………….……….....………...

h) Special features ……………………………………………………………………….….……….....………...

j) Other particulars ……………………………………………………………………………………....………..

3.15 Travelling Mechanism

a) Driving Wheels: Numbers ……………………….....………….. Diameter (mm) ………………………………….

b) Rail size ……………………………………………………….....…………………………………………..

c) Axle size ……………………………………………………….....…………………………………………….

d) Brake Particulars:

  1) Mechanical: Shoe brake/lever operated

  2) Type ……………………………………………………….....……………………….……………………

  3) Numbers ……………………………………………………………....…………....………………………….

  4) Make ……………………………………………………………….....…………….………………………….

  5) Size ……………………………………………………………….....…………………………………………

e) Electrical: Electro-magnetic thruster operated brake ……………………………....…………………… Yes/No

  1) Type ………………………………………………………………………....….…………………………….

  2) Numbers ……………………………………………………………………....…………………………………….

  3) Make ………………………………………………………………………....………..………………………….

  4) Size ………………………………………………………………………....……………………………….

f) Wheel Loadings (kg)

Sl. No.	*Wheel Number* *Load*	*1*	*2*	*3*	*4*
(1)	(2)	(3)	(4)	(5)	(6)
i)	Maximum				
ii)	Minimum				

g) Bearings:

1) Type ………

2) Make ………

3) Size ………

4) Numbers ………………………………………………………………………………………………………

3.16 Drive Unit Particulars — Reversible Yes/No

a) Electric Motor:

1) Type ………

2) Make ………

3) Size ………

4) kW ……

5) Speed (rev/min) ………………………………………………………………………………………………

b) Primary Reduction:

1) Type ………

2) Make ………

3) Size ………

4) Ratio ………

5) Service factor …………………………………………………………………………………………………

c) Bearings:

1) Type ………

2) Make ………

3) Size ………

d) Coupling:

   1) Type ……………………………………………………………………………………………………

   2) Make …………………………………………………………………………………………………

   3) Size ……………………………………………………………………………………………………

e) Secondary reduction ……………………………………………………………………………………

f) Overall drive efficiency ………………………………………………………………………………

g) Other particulars ………………………………………………………………………………………

3.17 Air Blower

a) Capacity (Nm^3/h) ……………………………………………………………………………………

b) Discharge pressure (MPa) (Gauge) ……………………………………………………………………

c) Discharge temperature (K) ……………………………………………………………………………

d) Motor:

   1) kW ………………………………………………………………………………………………………

   2) Speed (rev/min) ……………………………………………………………………………………

   3) Type ……………………………………………………………………………………………………

   4) Size ……………………………………………………………………………………………………

   5) Make ……………………………………………………………………………………………………

e) Air Filter:

   1) Type ……………………………………………………………………………………………………

   2) Size ……………………………………………………………………………………………………

   3) Make ……………………………………………………………………………………………………

f) Other particulars ………………………………………………………………………………………

3.18 Materials of Construction

The material of construction of different parts/accessories shall be as per Table 2 and Table 3.

Table 2 Materials of Construction
(*Clause* 3.18)

Sl No. (1)	**Items** (2)	**Material Specification** (3)	**Hardness BHN** (4)
i)	Scraper Blades		
ii)	Thread rollers		
iii)	Thread wear plates for slew rollers		
iv)	Rollers for slewing		
v)	Rollers for cog wheel		
vi)	Pins for cog wheel		
vii)	Chain wear plate		
	a) Scraper b) Elevator		
viii)	Elevator buckets		
ix)	Brake shoes		
x)	King post		
xi)	Travelling wheel		
xii)	Travelling axles		
xiii)	Other shafts		
xiv)	Winch drum		
	(Conveyor pulleys)		
xv)	Conveyor idlers		
xvi)	Rope sheaves		
xvii)	Supporting brackets		
xviii)	Structurals		
xix)	Plain bearings		
xx)	Bush bearing		
xxi)	Guide rollers for elevator chain		
xxii)	Ballast weight		

Table 3 Materials of Construction

(*Clause* 3.18)

Sl No.	**Items**	**Chain**		**Sprocket**	
		Material Specification	**Hardness BHN**	**Material Specification**	**Hardness BHN**
(1)	(2)	(3)	(4)	(5)	(6)
i)	Bucket elevator				
ii)	Scraper				
iii)	Power transmission for:				
iv)	Travelling				
v)	Scraping				
vi)	Elevator				
vii)	Conveyor				
		Gear		Pinion	
viii)	Slewing				
ix)	Luffing (normal)				
x)	Luffing (micro)				
xi)	Scraper				
xii)	Elevator				

3.19 Painting

a) Surface preparation by sand blasting/brushing.

Sand blasting/brushing

Sl No.	*Shop Painting*	*Finished Painting*
(1)	(2)	(3)
i)		
ii)		
iii)		
iv)		

b) Specification of paint ………………………………………………………………………………………....……

c) Number of coatings ……………………………………………………………………………..…………....……

d) Thickness (micron of each coating) ……………………………………………………………..…………....……

3.20 Weight in kg

a) Total (including ballast) ………………………………………………………………………………………....……

b) Ballast weight ………………………………………………………………………...…………………....……

c) Control cabin ……………………………………………………………………….………….…………....……

d) Elevator ……………………………………………………………………………….……………………....……

e) Discharge conveyor ……………………………………………………………..…………………….....……

f) Scraper …………………………………………………………………………………………….…………....……

g) Turn table ……………………………………………………………………………….…………………....……

h) Main gear ………………………………………………………………………………………..…………….....……

j) King post ……………………………………………………………………………..………..…………....……

k) Main bearing ……………………………………………………………………………….…………………....……

m) Tic rod assembly ……………………………………………………………...…………………....……

n) Long travel assembly ……………………………………………………………………………………....……

ANNEX A
(*Foreword*)

COMMITTEE COMPOSITION

Earth Moving Equipment and Material Handling Sectional Committee, MED 07

Organization	*Representative(s)*
BEML Limited, Bengaluru	Shri V. Sekar **(*Chairperson*)**
Airports Authority of India, New Delhi	Shri K. S. Kunwar Shri Jaspal Singh (*Alternate*)
Automotive Research Association of India, Pune	Shri A. Akbar Badusha
BEML Limited, Bengaluru	Shri Hemant kumar
Bharat Coking Coal Limited, Dhanbad	Shri Arun Nand Sahay Shri Chandra Shekhar S. I. (*Alternate*)
Bharat Heavy Electrical Limited, New Delhi	Shri G. Bhagchandani Shri S. K. Bhaumik (*Alternate*)
Caterpillar India Private Limited, Chennai	Shri K. Reji Jose Shri V. Bhaskaran (*Alternate*)
Cement Corporation of India Limited, New Delhi	Shri A. K. Srivastava Shri Anurag Kumar Saini (*Alternate*)
Central Mine Planning and Design Institute Limited, Ranchi	Shri Parag Majumdar Shri Praveen K. Sinha (*Alternate*)
Directorate General Factory Advice Service and Labour Institutes, Mumbai	Shri Sumit Roy
Directorate General of Mines Safety, Dhanbad	Shri D. B. Nayak Shri Vijay Yadaorao Barapatre (*Alternate*)
Directorate General of Quality Assurance, Ministry of Defense, New Delhi	Lt Col Sidharth Khattri Shri Raghubir Singh (*Alternate*)
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Epiroc Mining India Limited, Nashik	Shri Prakash Gore
Escorts Construction Equipment Limited, Faridabad	Shri Faiz Ahmad Ms Rupali Sharma (*Alternate*)
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Heavy Engineering Corporation Limited, Ranchi	Shri Aravind Doss Shri Amit Pal (*Alternate* I) Shri Vijay Kumar (*Alternate* II)
Indian Construction Equipment Manufacturers Association, New Delhi	Shri K. V Krishnamurthy
Indian Institute of Technology (ISM), Dhanbad	Prof L. A. Kumaraswamidhas
JCB India Limited, New Delhi	Shri Saurabh Dalela Shri Vivek Rawat (*Alternate*)
John Deere India Private Limited, Mumbai	Shri Karthik Kaliappan Shri Raj Anand (*Alternate*)
Komatsu India Private Limited, Bengaluru	Shri M. Rajendran Shri Vikrant Sharma (*Alternate*)

Organization	*Representative(s)*
L & T Komatsu Limited	Shri G. S. Narayana Shri K. Keshava (*Alternate*)
Mahindra Construction Equipment, Chakan	Shri Goplakrishna Rajendra
Manitou India Limited, Greater Noida	Shri Atul K. Singhal
Mcnally Bharat Engineering Company Limited, Kolkata	Shri Ashok Kumar Bose Shri Sandipan Daw (*Alternate*)
Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, New Delhi	Shri Sushil Lakra
Ministry of Shipping, New Delhi	Shri Anil Pruthi Shri Ramji Singh (*Alternate*)
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National Mineral Development Corporation, Hyderabad	Shri S. J. Rao Shri S. K. Roy (*Alternate*)
Office of Development Commissioner (MSME), New Delhi	Shri Susanta Kumar Som Shri Suvankar Santra (*Alternate*)
Project and Development India Limited, Noida	Shri Narendra Singh Shri Abhijit Mahata (*Alternate*)
Volvo Construction Equipments India Private Limited, Bengaluru	Shri Sai Prasad Polipalli Shri K. Raghuraman (*Alternate*)
In Personal Capacity (*165, 2nd Main Road, 4th Cross, Chamarajpet, Bengaluru-560018*)	Shri G. Nagaraj Venkatesh
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